

wherein:-

\sim indicates a bond at a chiral centre of the structure which centre may be in the R or S configuration or a mixture thereof;

R and R² is an amino acid side chain group which may be the same or different;

M^I and M^{II} may be the same or different and are selected from the group consisting of hydrogen, C₁-C₄ alkyl, chloro and C₁-C₄ alkoxy;

R^N is -N(Z^I)Pg^N where Z^I is selected from the group consisting of hydrogen, methyl and part of a cyclic amino acid sidechain joined to Q^I, and PgN is a protecting group for amine;

R^C is selected from the group consisting of a carboxy terminal part of the mimetic, hydrogen, R, and -CH₂R;

Q₁ = R¹ which has the same definition as R and R² above and Q² = Z where Z is selected from the group consisting of hydrogen, methyl, ethyl, formyl and acetyl, -CH₂R, and -C(O)R or alternatively Z is part of a cyclic amino acid side chain group joined to R²; or Q¹ and Q² taken together represent a cyclic group;

Q³ is selected from the group consisting of Y, -C(O)NHCH(R)Y-, -C(O)ENHCH(R)Y-, -C(O)N(Q⁵)CH(R)Y- wherein Y is selected from the group consisting of C(O) and CH₂ and Q⁵ is a covalent bond from the Q⁴ group to the nitrogen atom in Q³ to form a bicyclic ring system or alternatively, is selected from the group consisting of hydrogen, C₁-C₄ alkyl, chloro and C₁-C₄ alkoxy and E is (AA)_n where n is 1-300 and AA is an amino acid residue; and

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Q^4 is selected from the group consisting of $CH(M^1)$, $C(O)$, $CH(Q^5)CH_2$ and $CH(Q^5)C(O)$,

with the provisos that when:-

- (i) $Q^4 = CH(M^1)$, Y is $C(O)$;
- (ii) $Q^4 = C(O)$, Y is CH_2 ;
- (iii) $Q^4 = CH(Q^5)CH_2$, Y is $C(O)$;
- (iv) $Q^4 = CH(Q^5)C(O)$, Y is CH_2 ; and
- (v) $Q^3 = -C(O)N(Q^5)CH(R)Y$, Q^5 is a covalent bond from the Q^4 group to the nitrogen atom in Q^3 which is a cyclization forming a bicyclic ring system.

75. A peptide mimetic as claimed in claim 74 wherein when Q_1 and Q_2 form a cyclic group, Q_1Q_2 is selected from the group consisting of $-CH(R)C(O)-$, $-CH_2CH(R)C(O)-$, $-CH_2CH_2CH(R)C(O)-$, $-CH(R)CH_2-$, $-CH_2CH(R)CH_2-$, $-CH_2CH_2CH(R)CH_2-$, $-CH_2CH(R)-$, $-CH_2CH_2CH(R)-$, $-CH(R)CH_2CH_2-$, $-CH_2CH(R)CH_2CH_2-$, $-CH(R)CH_2C(O)-$ and $-CH_2CH(R)CH_2C(O)-$.

76. A peptide mimetic as claimed in Claim 74 wherein n is 1-30.

77. A peptide mimetic as claimed in Claim 74 wherein E represents a loop of n amino acids which additionally incorporate non-alpha amino acid(s), alpha dialkyl amino acid(s) or other amino acid which provides the peptide mimetic with increased binding affinity or increased ease of detection, identification or purification.

78. A peptide mimetic as claimed in Claim 74 wherein Q^1 is R, Q^2 is Z, Q^3 is Y.

79. A peptide mimetic as claimed in Claim 74 wherein Q^1 is R, Q^2 is Z, Q^3 is $C(O)NHCH(R)Y$ and Q^5 is M^1 .

80. A peptide mimetic as claimed in Claim 74 wherein Q^1 is R, Q^2 is Z, Q^3 is $C(O)NHCH(R)C(O)-NHCH(R)Y$ and Q^5 is M^1 .

81. A peptide mimetic as claimed in Claim 74 wherein Q^1 is R, Q^2 is Z, Q^3 is $C(O)N(Q^5)CH(R)Y$ and Q^5 is a covalent bond to Q^3 .

82. A peptide mimetic as claimed in Claim 74 wherein Q^1 is $CH(R)C(O)Q^2$, Q^2 is a covalent bond to Q^1 , Q^3 is Y and Q^5 is M^I .

83. A peptide mimetic as claimed in Claim 74 wherein Q^1 is $CH_2CH(R)C(O)Q^2$, Q^2 is Q^1 , Q^3 is Y and Q^5 is M^I .

84. A peptide mimetic as claimed in Claim 74 wherein R^C is $C(O)Pg^C$ where Pg^C is a protecting group for carboxylic acid.

85. A peptide mimetic as claimed in Claim 84 wherein Pg^C is selected from the group consisting of alkoxy, benzyloxy, allyloxy, fluorenyl methyloxy, amines forming easily removable amides, a cleavable linker to a solid support, the solid support itself, hydroxy-NHR, $C(O)R$ and the remaining C-terminal portion of the mimetic.

86. A peptide mimetic as claimed in Claim 85 wherein Pg^C is methoxy or ethoxy.

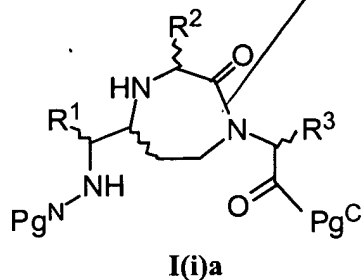
87. A peptide mimetic as claimed in Claim 74 wherein Pg^N is a protecting group for an amine.

88. A peptide mimetic as claimed in Claim 74 wherein Pg^N is selected from the group consisting of Boc, Cbz, Fmoc, Alloc, trityl, a cleavable linker to a solid support, the solid support itself, hydrogen, R, $C(O)R$ and the remaining N terminal portion of the mimetic.

89. A peptide mimetic as claimed in Claim 74 wherein M^I or M^{II} is methoxy.

90. A peptide mimetic as claimed in Claim 74 wherein M^I or M^{II} is methyl.

91. Compounds I(i)a having the structure:

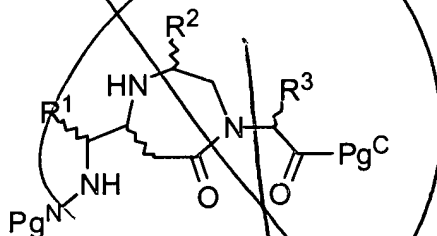


wherein R^1 , R^2 and R^3 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates

a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

92. Compounds I(i)a as claimed in Claim 91 where R_1 and $R_2 \neq H$.

93. Compounds I(ii)a having the structure:

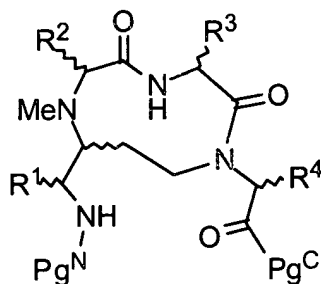


I(ii)a

wherein R^1 , R^2 and R^3 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

94. Compounds I(ii)a as claimed in Claim 93 where R_1 and $R_2 \neq H$.

95. Compounds II(i)a having the structure:

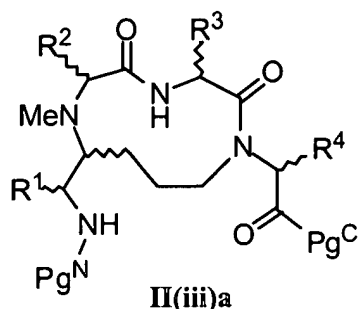


II(i)a

wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

96. Compounds II(i)a as claimed in Claim 95 where R_1 and $R_2 \neq H$.

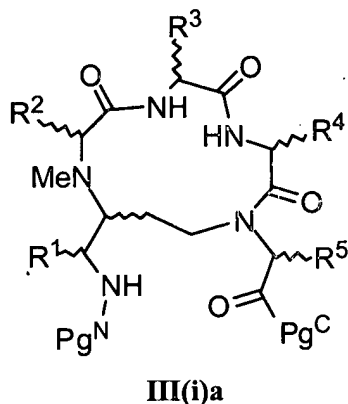
97. Compounds II(iii)a having the structure:



wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

98. Compounds II(iii)a as claimed in Claim 97 where R_1 and $R_2 \neq H$.

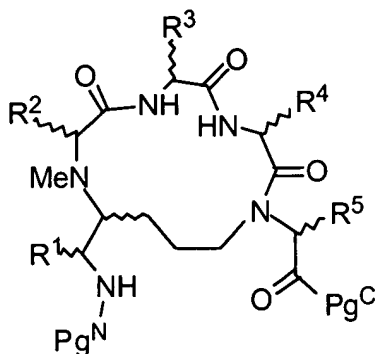
99. Compounds III(i)a having the structure:



wherein R_1 , R_2 , R_3 , R_4 and R^5 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

100. Compounds III(iii)a having the structure:

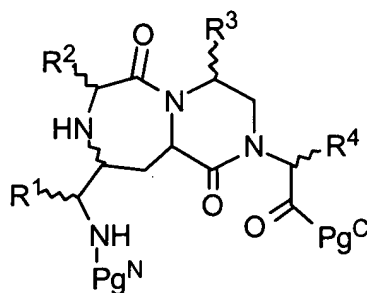
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wherein R¹, R², R³, R⁴ and R⁵ are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

wherein R₁, R₂, R₃ and R⁴ are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \wedge indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

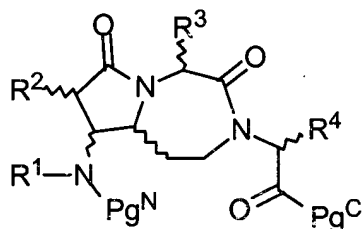
102. Compounds IV(ii)a having the structure:



IV(ii)a

wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

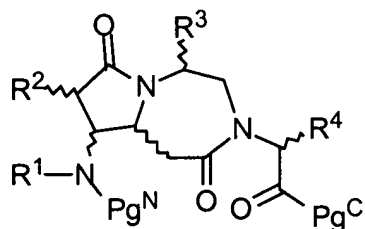
103. Compounds V(i)a having the structure:



V(i)a

wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

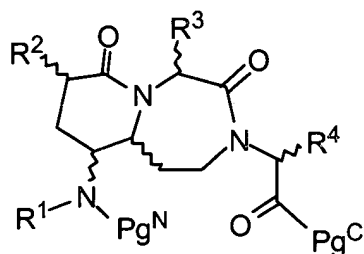
104. Compounds V(ii)a having the structure:



V(ii)a

wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

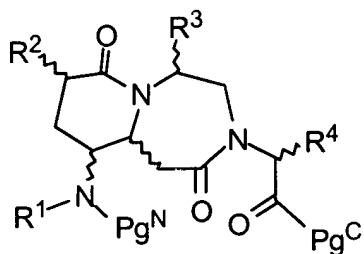
105. Compounds VI(i)a having the structure:



VI(i)a

wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

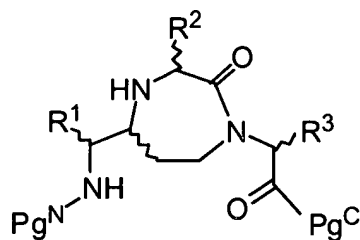
106. Compounds VI(ii)a having the structure:



VI(ii)a

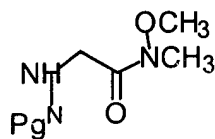
wherein R_1 , R_2 , R_3 and R^4 are amino acid side chain groups, Pg^N is a protecting group for amino, Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

107. A process for making mimetics I(i)a having the structure:

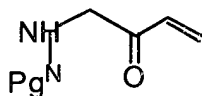


I(i)a

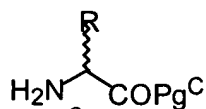
wherein R^1 , R^2 and R^3 are amino acid side chain groups, Pg^N is a protecting group for amino and Pg^C is a protecting group for carboxylic acid and \sim indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof wherein compounds having the structure:



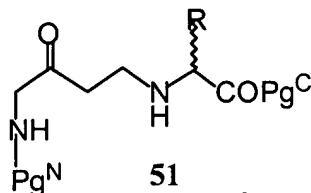
are reacted with vinyl magnesium bromide to form compounds having the structure:



which are then reacted with compounds having the structure:



to form compounds having the structure:



which are then reacted with compounds having the structure:

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